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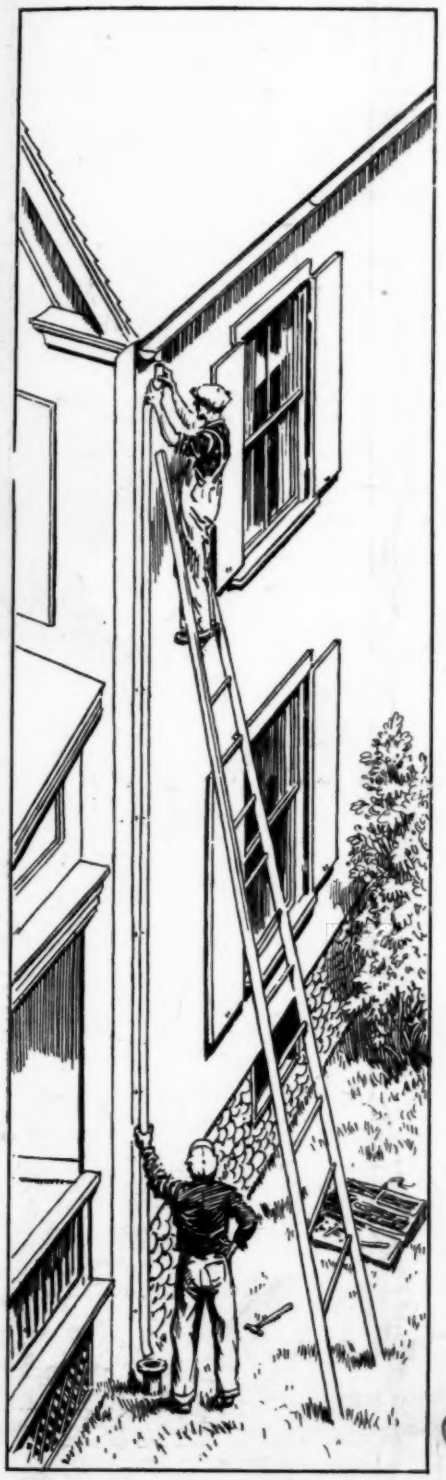
AMERICAN ARTISAN and Hardware Record

Vol. 88. No. 1. 620 SOUTH MICHIGAN AVENUE, CHICAGO, JULY 5, 1924. $2.00 Per Year



Which shall it be?

—rusting, unsightly jobs needing replacements every few years,
—or installations of Horse Head Zinc?

There is no *more* durable metal for roofing accessories than Horse Head Zinc. Its first cost is but half that of any *equally* durable metal. Its final cost to the owner is far less than that of any less durable metal. And it makes profits for you.

The sheet metal worker who installs "Horse Head" Zinc fittings builds for permanence. Every job is his advertisement. Every owner knows him as a real craftsman.

Horse Head Zinc conductor pipe, gutters, and trim are manufactured and distributed by the following:

David L upton's Sons Company, Philadelphia, Pennsylvania
The J. M. & L. A. Osborn Company, Cleveland, Ohio
Klauer Manufacturing Company, Dubuque, Iowa
Holbrook, Merrill & Stetson, San Francisco, California

New Jersey Zinc The New Jersey Zinc Company New Jersey Zinc

This Feature

Sells MUELLER FURNACES!

"The Mueller Zone of Extra Heating Capacity" is just what it says.

It supplies the extra square feet of direct heating surface that make the Mueller Double Radiator Furnace the lowest-priced warm air furnace obtainable, considered from a standpoint of cost per square foot of direct heating surface, and fuel economy.

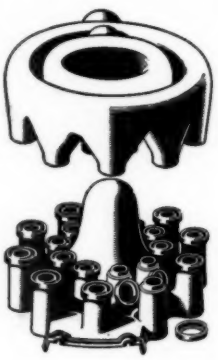
You can *see* this extra heating surface. So can your prospective buyers when you show it to them on your floor.

And it is such features as this, backed by the Mueller easy payment plan, better engineering service, and 67 years of successful furnace manufacturing and selling experience, that make Mueller Furnace sales easy—and *profitable!*

Shall we give you the details? Just write this one word on the back of a postcard: "YES".

L. J. MUELLER FURNACE CO.
193 REED STREET MILWAUKEE, WISCONSIN
Makers of Warm Air, Steam, Vapor and Hot Water Heating Systems, Registers, Pipe and Fittings.

The MUELLER Zone of EXTRA Heating Capacity



Water will heat quicker in a wide, shallow pan than in a narrow vessel of the same capacity because the pan has *more heating surface.*

In the same way, the Mueller Double Radiator Furnace supplies quick, dependable heat at low fuel cost because it has more square feet of direct heating surface than any other furnace of equal size fire pot.

MUELLER FURNACES

— dependable heat —

easier to sell than to sell against

Eng. gt. Pub.

Founded 1880 by Daniel Stern

Thoroughly Covers the Warm Air Furnace Sheet Metal, Stove and Hardware Interests

AMERICAN ARTISAN and Hardware Record

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INVITING YOU!

The editorial columns of AMERICAN ARTISAN are devoted to the development and perpetuation of the Warm Air Heating, Stove and Range, Sheet Metal and Hardware industries. Its readers are cordially invited at all times to use this commonsense method of obtaining the advice they need for the successful conduct of their business.

If your problem is a knotty or technical one, submit it to the Service Department and secure the benefits of the opinions of other men. It is an exchange information department, and you are asked to relate your accomplishments and tell how you have surmounted difficulties. Wherever possible rough sketches or photographs should accompany the questions or suggestions, as they always make clear the points involved. Use this Service Department freely; it is yours.

Answers to all questions will be held strictly confidential if so desired by the sender. If no mention is made to the contrary, questions and answers will be published in the various departments of AMERICAN ARTISAN.

ALPHABETICAL INDEX AND CLASSIFIED LIST OF ADVERTISERS, Pages 44-46-48.

Anaconda

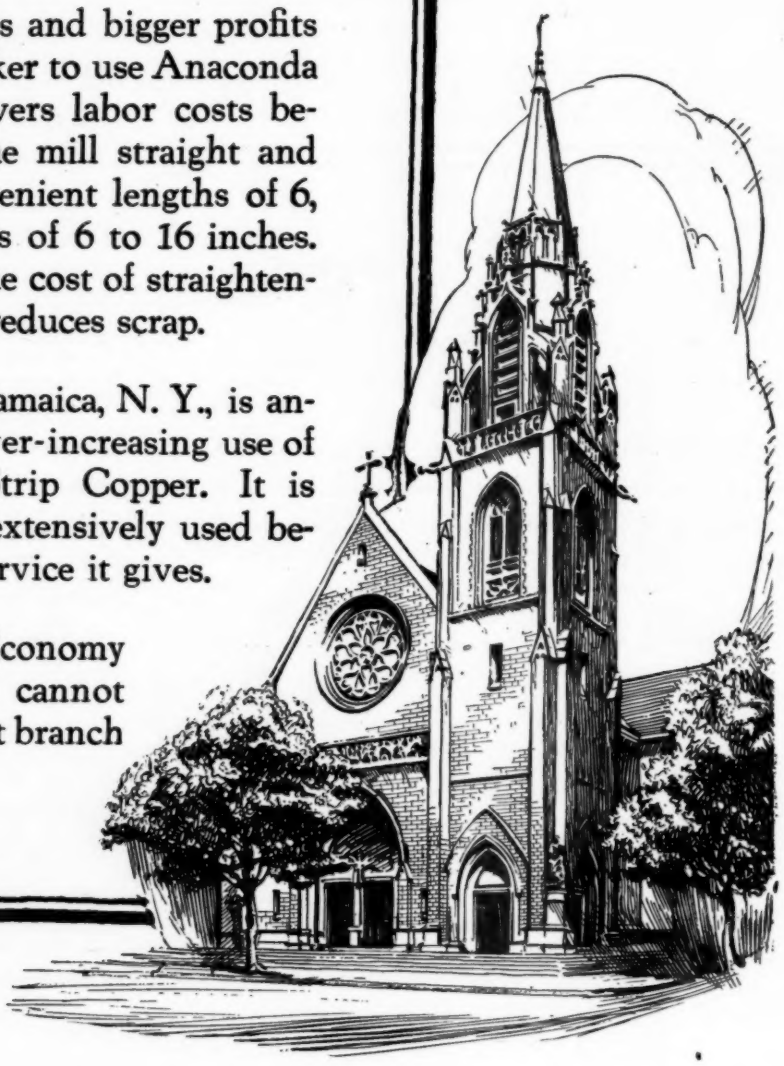
Economy Strip Copper gives *you* bigger Profits!

It means better business and bigger profits for the sheet metal worker to use Anaconda Economy Strip. It lowers labor costs because it comes from the mill straight and flat as a board in convenient lengths of 6, 8, 10 feet and in widths of 6 to 16 inches. This does away with the cost of straightening and cutting and it reduces scrap.

St. Mary's Church at Jamaica, N. Y., is another example of the ever-increasing use of Anaconda Economy Strip Copper. It is being more and more extensively used because of the superior service it gives.

Figure on Anaconda Economy Strip. If your jobber cannot supply you, write nearest branch listed below.

St. Mary's Church, Jamaica, N. Y. Roofed with Anaconda Economy Strip Copper. Architect—Gustave E. Steinback. Contractor—August Kuhnla, Inc., Brooklyn, N. Y.



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Two and Two Make Four, But What Good Does it Do You to Know It?

Editorial of the Week

WHAT do you do with the figures at the bottom of the pages in your bookkeeping books?

Are they just put down to make it possible for you to make an income tax report to your Uncle Sam?

Or do you make comparisons with last month, a year ago, two years ago?

And what do you do when you have made the comparison?

Pat yourself on your back?

Or kick yourself on your shins?

If that is all you use them for you might just as well not have them put down, except that Uncle Sam requires some sort of a bookkeeping system, so that he may check up on your income tax return.

No, figures—the conclusive ones on your books—should and can serve you wonderfully well.

They can show you, for example, that a certain department of your business costs too much to operate in proportion to what it brings you in net profit.

They can also show you that by increasing expense of operation in a certain department it may be brought to yield far greater returns.

They can point a way to develop new or additional business.

They can show you where you should trim if it becomes necessary to reduce expenses.

They can show you a hundred and one things about your business that you do not know and which you should know, in order to make the business produce the greatest possible net return.

Of course, it takes time and it costs money to have a properly organized bookkeeping system, first to install it and then to operate it.

But the results of such a system are so great—provided you make the proper use of the figures in your books—that the necessary money and the necessary time and the necessary labor will be extremely well spent.

For example, we know of a sheet metal contractor who for years had been having a practical monopoly on a certain class of work in his city. The other contractors had given up figuring against him, because his price was always lower.

He did a general jobbing business and all the jobs were entered in a general ledger, but without being figured up after their completion.

One day the bookkeeper quit and another man was employed in his place. The new bookkeeper had learned what books and records are supposed to stand for in a well conducted business, and he suggested that all the cost records for each job should be kept together and also that after each job was completed, the finished cost should be figured out and compared with the estimate.

He had occasion to do this figuring on one of the contracts that the firm had a monopoly on and found that instead of making a reasonable profit, they were dangerously near the red ink line.

Upon investigation it was found that the time consumed in preparing certain portions of the material had originally been taken under exceptionally favorable circumstances, and that in only a very few instances had the work been done in the time used as a figuring basis in the estimate.

That bookkeeper was worth a lot to his employer, but the fact remains that bookkeeping records are of very little value unless they are used to their fullest possible advantage by their owners.

Your semi-annual inventory is probably in course of being taken when you read this. Make it of the greatest possible service to your business.

Random Notes and Sketches.

By Sidney Arnold

"Some times cause and effect are mixed in an argument, and you can't tell which is which," said Joseph Gardner to me while we were lunching together one noon during the Washington convention, and then he illustrated with the following:

M. D.: "I advised you to drink cider. Has it done you any good?"

Patient: "It sure has. I bought a cask of the hard kind and a week ago I could hardly move it. Now, however, I can lift it quite easily."

* * *

Going through Alexandria, Virginia, on our way to Washington's home at Mount Vernon, we saw a colored gent traveling at a rather rapid gate down the street and turning a corner on two wheels, so to speak.

Jule Gerock noticed him and was reminded of something similar that came to his notice while on a trip in Texas some time ago:

A colored citizen who had been unwisely exploring foreign chicken coops heard that the sheriff was aiming in his direction. Hastily he sought the railroad station and asked the agent to give him a ticket to the end of the line on the fastest train.

"Our fastest train left just ten minutes ago," replied the agent.

"Well," gasped the would-be tourist, "jes' gimme de ticket an' p'int out de track!"

* * *

Bill Wise, the furnace maker in Akron, has attained a new dignity and he shows it, too. At the Midland Club meeting he was smoking a Camel when I asked him how his son was getting on; he passed it on with little or no attention, and I was rather surprised for Bill usually was quite eloquent in the praise of his heir apparent. But Ed Fox, who was at our table, informed me that there wasn't really anything the matter: It was just a case of "the king is dead, long live the king." Bill is the proud grandfather of a lusty youngster who already knows him well enough to smile at him when he drops around—at least once a day—to pay his respects.

Well, who wouldn't be dignified when he can claim the title of "grandpa" at Bill's age!

* * *

Ed McCabe, who is in charge of the Chicago branch of the International Heater Company, has a man in the warehouse who is an inveterate tobacco chewer.

One day, when he was loading a furnace on the truck of one of "Les" Taylor's customers, somebody yelled out: "See the big aeroplane!"

Everybody ran to the big warehouse door and looked up, including the friend with the cud habit and he was so excited that he forgot to stop chewing with the result that some of the rich juice went down the wrong (I don't know that there is any right way for tobacco juice to go down), and then he forgot about the flying machine.

Ed says that it didn't cure the fellow.

* * *

"Ros" Strong, who sings, "What Is Home Without a Homer," has a young hopeful, who is a rather inquisitive mind, as will be noted from the following:

"Father," the youngster asked, "freight is goods that are sent by water or land, isn't it?"

"That's right."

"Well, then, why is it that the freight that goes by ship is called a cargo, and when it goes by car it is called a shipment?"

And then the hopeful wondered why father put on his hat and sauntered outside to get the air.

* * *

A. E. Engman, who sells ventilators for the Aeolus Dickinson Company, was a witness in a will case some time ago and after his examination stayed to listen to the testimony of others, among whom was an Irishman, who was interrogated by the counsel for the plaintiffs—those who wanted to break the will.

"Was the deceased," asked the lawyer, "in the habit of talking to himself when he was alone?"

"I don't know," was the reply.

"Come, come, you don't know, and yet you pretend that you were intimately acquainted with him?"

"Well, sir," said Pat, dryly, "I never happened to be with him when he was alone."

* * *

J. Harvey Manny, who sells American self-cleaning cast iron furnaces to Chicago installers, had just gotten his automobile out the shop after a thorough overhauling and was trying the engine out a little bit when one of those pestiferous speed cops in one of the western suburbs hailed him and asked where the fire was.

One word led to another and it ended in the justice of peace office, where the following conversation took place:

J. P.: "Yer accused o' speedin'. Guilty or not guilty?"

Harvey: "Not guilty."

J. P.: "Now, be keerful, young feller! Do I understand ye to be callin' our deppity sheriff a liar?"

* * *

Believe the Best.

Men like to talk, to gossip, too;
I've even heard that women do,
So here and there, and up and down,
From door to door, from town to town,
The strangest stories float about,
Until humanity you doubt.
Is ever any fellow fair?
Or is there goodness anywhere?
Of course there is! More good than bad
I've found the world, because I had
A simple rule I could apply
To ev'ry rumor floating by,
A simple rule, a simple test:
Believe the best,
Forget the rest.

We'll all be happier, I'm sure,
And more old friendships will endure,
And more new friendships we will form,
The hearts of all of us to warm,
If all are slower to believe
Suspicions that will make us grieve;
Are just a little more inclined
To credit only what is kind;
If we will lend a listening ear,
But only good reports to hear—
Yes, life will have a lot more song
Believing right than thinking wrong
Whatever rumor may suggest,
Believe the best,
Forget the rest!

—Douglas Malloch.

Wisconsin Has First Comprehensive Code for Heating and Ventilating Plants.

Code Applies to All Public Buildings and Places of Employment and Will Cover Repairs to Present Systems.

DETAILS now available of Wisconsin's new code for heating and ventilating show it to be one of the most comprehensive of its kind ever enacted. The code also takes a stand on some matters, such as the recirculation of air in connection with ventilating work, which is a direct outcome of the agitation on this point which has been going on for the past few years in heating and ventilating circles. When finally sent out in printed form, the code will include a set of working rules and diagrams to clarify any doubtful points and to make the requirements easier to understand.

The new code is divided into a preface, six sections, an appendix and a supplement, the latter containing the working rules, with engineering details and suggestions. Section 1 is devoted to code definitions; Section 2, to application of code; Section 3, to general requirements; Section 4, to classified areas and minimum requirements therefor; and Section 5, to classified equipment and particular requirements therefor.

Extent of Code.

Section 4 gives an idea of the extent of the code, the requirements applying to assembly rooms, motion picture booths, kitchens, churches, school rooms, vocational and research rooms, wardrobes and locker rooms, toilets, baths and swimming pools, private rooms, general offices, sales rooms, garages, dormitories and wards, and penal institutions.

Some Typical Definitions.

Under "Definitions," fresh air is defined as "air that is stimulating and refreshing and which is free from contamination of any kind in proportions detrimental to the health or comfort of the persons affected thereby." An added note reads: "Recircuclated air from interiors of buildings, unless purified by approved apparatus in circuit, does not constitute fresh air as herein defined."

Application of Code.

The code applies to "all buildings used, or to be used, as places of employment or as public buildings, as defined by statutes." This includes not only new buildings and to all repairs exceeding 50 per cent of any such system therein, but to "all necessary alterations or improvements in existing buildings, other than existing places of industrial employment." The code, it is stated, is not intended to be retroactive generally, but where health, safety or welfare conditions warrant, the Industrial Commission retains full statutory powers to order necessary alterations or improvements in existing buildings.

The new heating and ventilation code adopted in Wisconsin, July 6, 1923, and about to be published in printed form, will be administered by the Industrial Commission of Wisconsin, of which R. A. Small is ventilation engineer. The law was enacted after a series of hearings had been held upon its proposed requirements, in which many heating and ventilating engineers and others participated. When printed the code will include a "Working Rules" supplement, showing engineering details and standards, together with recommendations and interpretations of orders on which there might be question among semi-technical designers, and, possibly, with allied industrial codes affecting particular industries. In the abstract here presented, the more important requirements are given in full.

General Requirements.

All plans and data for heating and ventilation installations must be designed and prepared by competent designers. Complete plans for heating and ventilation, together with the specifications applying to the work involved, for all schools and for other buildings of the types mentioned, having a total floor area of more than 1,000 square feet must be submitted to the Industrial Commission for approval. It is arranged, however, that in municipalities where plans are examined and building permits issued by a city building inspector, in a manner approved by the Industrial Commission, the heating and ventilation plans should be generally submitted to such local authorities for approval, instead of being sent specifically to the Industrial Commission. Plans must be submitted in duplicate and must be accompanied by details and data sufficient for a specific review of the installation. The data submitted must be those indicated on the standard data sheets issued by the Industrial Commission, the purpose being to avoid the necessity for a detailed study and calculation by the reviewer.

The heat calculations are to be on the basis of temperatures not more than 10 degrees F. higher than the lowest recorded for a given locality by the U. S. Weather Bureau during the preceding ten years.

Provisions for Maintenance and Operation.

The following rules are given for maintenance and operation:

Maintenance. All heating, ventilation and exhaust installations shall be maintained in good working order.

Sanitary Conditions. All heating and all ventilation installations, equipment, accessories, and appurtenances shall be kept clean and sanitary.

Operation. All heating, ventilation and exhaust installations shall be operated consistently. *Notes.* (a) It is always desirable to install a recording instrument in connection with a mechanical ventilation system. Such instruments demon-

strate the consistentcy with which the system is operated. A recording air-pressure gauge, an odometer, a recording thermometer, or even a speedometer, will be comparatively inexpensive and will be of great assistance to adequate supervision; (b) In small school buildings, printed memorandum pads provided near the thermometers, have been used with a reasonable measure of success. The teachers are required to make hourly reports of thermometer readings for each day of the week.

General Air Conditions Required.

"Every owner and employer and tenant," states the code, "shall provide and maintain air conditions, temperatures and humidities and motions, which are conductive to the health, safety and welfare of employes and frequenters in respective occupied areas, with due consideration for the nature of the industry therein and the occupancy thereof." Under the provision that there must be no injurious drafts a note is inserted to the effect that "perceptible currents of air having a temperature of less than 60 degrees F. constitute drafts when in intimate contact with occupants."

Other provisions in this connection are:

Humidity Required. All air used for ventilation purposes shall be appropriately humidified or dehumidified to suit the nature of the occupancy or industry affected. (In specific cases where humidity control is impracticable, permission to omit humidity control may be obtained from the Industrial Commission.)

Maximum Inlet Temperature 120° F.

The calculated room inlet temperature of air used for heating and ventilation purposes shall not exceed 120 degrees F., unless under specific written consent of the Industrial Commission. *Note*: In gravity systems it is intended to base the heater capacity, arrangements and control upon inlet temperatures not exceeding 120 degrees F., although in practice it may sometimes be necessary to heat the air to higher temperatures in order to drive it into the rooms.

Control. Adequate control, manual or otherwise, of temperature and other conditions and effects of heating and of ventilation, shall be provided and maintained and operated for all heating and all ventilation systems. Automatic control is always preferable. Control of dampers and valves by pneumatic or other means permitting interlocking from a central point, is always preferable.

Recirculation. Where positive ventilation is required there shall be no recirculation of air unless written consent therefor has been granted by the Industrial Commission; except that where the design, equipment and control is such as to promote and encourage and reasonably assure consistent operation of the system in practice, recirculation will be permitted as follows: (a) 100 per cent recirculation while building is entirely unoccupied; (b) 25 per cent recirculation, during occupancy, from occupied areas having no other contamination than human occupancy, without special cleansing devices other than may be required at intakes; (c) 50 per cent recirculation, during occupancy, from occupied areas having no poisonous or severely injurious contamination, where an effective approved dust eliminator is operated in air supply circuit. *Note*: A greater percentage of recirculation during occupancy will be permitted in case satisfactory cleansing and purifying and humidifying apparatus is arranged and maintained in air supply circuits, with positive control insuring operation of such apparatus during all such recirculation.

Positive Control of Recirculation.

Where recirculation is permitted, the arrangements for securing recirculation shall be positive. *Notes*: (a) Dampers should be interlocked and self-indicating; (b) With mechanical systems, automatic control at the intakes to the apparatus should be provided, insuring favorable temperature and moisture conditions of the air entering the apparatus; (c) It is suggested that when fractional recirculation is in effect, the fresh air intake area should be reduced proportionately as the area for recirculation is increased. This may be done by dampers interlocked by pneumatic or other mechanical means; (d) It is intended to *require* automatic manipulation of dampers to change from fresh air to recirculation, and vice versa.

Positive Heating Systems Required.

Positive heating systems shall be provided, maintained and operated for all occupied areas hereunder, whenever and wherever necessary thus to promote and safeguard the health, safety or welfare of employes or frequenters.

Positive Ventilation System Required.

Positive ventilation systems shall be provided, maintained and operated to accomplish required ventilation services for all occupied areas within the scope of this code, wherein the atmospheric conditions would otherwise be detrimental to the health, safety or welfare of employes or frequenters. *Note*: This includes all places of employment or occupancy wherein smoke, gas, dust, fumes, vapor, foul air or industrial poisons are used, stored, handled or are present in the air in sufficient quantities to obstruct the vision, or to be irritating, or to be injurious to health, safety or welfare of employes or frequenters.

Gravity Direct-Indirect Systems Prohibited.

Gravity direct-indirect systems shall not be considered permissible for installation under this code. This clause is intended to exclude the use of so-called direct-indirect radiators whereby the room air supply is supposed to be admitted directly from the outside to the base and to be delivered at the top of direct radiators placed in the room to be served, without mechanical assistance.

Gravity Systems Permitted.

(a) Gravity systems of heating and of ventilation shall be considered acceptable for service for occupied areas of such character, arrangement and moderate size, that uniform distribution of air supply and heat is thereby reasonably insured; (b) Mechanical systems are

required for similar service to all other areas.

Critical Outside Temperature for Gravity Systems.

Approval tests of gravity systems shall be made only when there is not less than 40 degrees F. difference between room temperature and outdoor temperature. The critical elevation of tests for room-air temperatures, humidities and motions shall generally be 1 foot above the normal seat line, where seats are used, or 4 feet above the floor where seats are not used. *Note*: Usually there should not be more than 4 degrees F. difference in temperature between points about 6 inches above the floor line and similar points 5 feet 6 inches higher.

Positive Exhaust Systems Required.

Positive exhaust systems shall be provided, maintained and operated for all occupied areas within the scope of this code, and for all machines, vats, tanks, furnaces, forges, salamanders, and all equipment and processes in such areas which produce or throw off dust sufficiently light to float in the air, or which emit heat, odors, fumes, gas or smoke in such quantities as to be irritating or injurious to the health; unless the general ventilation systems keep the air in the breathing zone of every employe or frequenter pure, fresh and clean. *Note*: The intensity of suction necessary in exhaust systems depends upon local conditions to such an extent that no definite intensity of suction is required herein, except that it shall in all cases be maintained sufficient actually to accomplish the required service in place and in practical operation.

Exhaust Systems, Clean Discharge.

Where necessary, exhaust systems shall include adequate dust collectors, or air washers, or other machines, contrivances or methods, whereby the discharge from the systems will be prevented from contaminating the breathing zone inside the building or becoming a nuisance or hazard either inside or outside the building.

Following are the principal items of Section 4:

Places of Assembly, Fixed Seats.

Scope. This classification shall be understood to include theaters, picture theaters, school auditoriums (not class rooms), public lecture halls and similar close-seated areas usually not provided with fixed seats, whether fixed seats are used or not.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas of this class having a seating capacity of fifty or more.

Minimum Air Supply. (a) The air supply provided and maintained for occupied areas of this class shall not be less than 3 C.F.M. per square foot of floor area between main walls, not including the stage, but including the gross floor area of balconies and galleries. (b) Similarly, the air supply for foyers and lobbies used in conjunction with occupied areas of this class shall be not less than 2 C.F.M. per square foot of floor area.

Rear Inlet Air Currents Prohibited. In areas used for fixed occupancy, the inlets shall be so located, arranged or equipped as to prevent direct inlet air currents from striking the backs of the occupants.

Places of Assembly, Without Fixed Seats.

Scope. This classification shall be understood to include lodge rooms, dance halls, dining and banquet rooms, skating rinks, gymnasiums, playrooms and similar areas not normally provided with fixed seats.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for occupied areas of this class (a) where the total window area is less than 10 per cent and the total outdoor openings therethrough is less than 5 per cent of the floor area, respectively; (b) wherever such occupied areas are in, or are used in connection with, school or college buildings.

Minimum Air Supply. The air supply provided and maintained for occupied areas of this class shall not be less than 1.5 C.F.M. per square foot of the floor area served.

Dining Room Ventilation. Where dining rooms and similar occupied areas are used in conjunction with adjacent or nearby kitchens or other sources of objectionable odors, the spread of such odors throughout the dining rooms should be prevented by appropriate exhaust of a portion of the dining room air supply through the kitchens or other sources of odors.

Places of Assembly for Worship.

Scope. This classification shall be understood to mean and include only those auditoriums, social assembly rooms, Sunday School rooms and similar areas which are contained in churches or houses of worship.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas of this class wherein the total window area is less than 10 per cent of the floor area served and the total outdoor openings therethrough is less than 2 per cent of floor area served.

Minimum Air Supply. The air supply provided and maintained for occupied areas of this class shall be not less than 1 C. F. M. per square foot of floor area.

Alternate Service. All ventilation systems installed in occupied areas of this class shall be arranged for selective delivery of entire service to either the auditorium floor or the basement floor areas, unless the air supply thereby is more than 2 C. F. M. per square foot of floor area.

Alternate Capacity. Where ventilation systems serve auditorium and basement floor areas in this class, the capacity of such system may be used upon alternate service to auditorium floor areas alone, when the air supply furnished thereto exceeds 2 C. F. M. per square foot of floor area.

School Rooms.

Scope. This classification shall be understood to include class, recitation, study and library rooms in all school and college buildings and similar areas used for educational purposes.

Positive Ventilation Required, Positive ventilation shall be provided and maintained for all occupied areas of this class, except

those which are used for open-air or outdoor treatment.

Minimum Air Supply. (a) The air supply provided and maintained for occupied areas of this class shall not be less than 2 C. F. M. per square foot of floor area; (b) similarly, the air supply for corridors and halls used in conjunction with occupied areas of this class shall be not less than 0.5 C. F. M. per square foot of floor area.

Alternate Service and Capacity. The capacity of heating systems and of ventilation systems installed in school buildings having not more than two class rooms may be based upon service to class room floor only, provided that where basement apparatus is used, appropriate arrangement shall be made for alternate service to basement areas if used for occupancy.

Wardrobes and Locker Rooms.

Scope. This classification shall be understood to include all wardrobes and locker rooms and similar areas in all buildings within the scope of this code.

Positive Ventilation Required. (a) Positive ventilation shall be provided and maintained for all areas of this class; (b) whenever practicable, such ventilation shall be accompanied by exhaust methods and, in any case, the effectiveness of the outlet shall not be less than that of the inlets.

Minimum Air Movement. The air movement provided and maintained for areas of this class, wherein positive exhaust ventilation is required shall be not less than 2 C.F.M per square foot of floor area.

Combination Rooms. (a) Positive direct air supply of not less than 10 C.F.M. per locker (5 C.F. M. per locker) or individual hanger space, in addition to the air supply required for use as halls or corridors, shall be provided and maintained for all halls and corridors containing lockers for clothing, or which are used as wardrobes or cloak rooms; (b) positive inlets and outlets shall be provided and maintained for such areas and the activity of the outlets shall not be less than that of the inlets.

Wardrobes and Cloak Rooms in School Buildings. (a) Where necessary, in order to insure practical results in such areas, the required ventilation shall be accomplished by use of positive inlets admitting air from adjacent class rooms or corridors or similar areas, in conjunction with positive outlets and ducts discharging direct to outside atmosphere; (b) the movement of air in such areas shall be such as to promote thorough aeration of clothing therein.

General Offices.

Scope. This classification shall be understood to include all offices and similarly occupied areas other than those included under "Private Rooms," wherein the air conditions and nature of occupancy do not involve reasonable inclusion in any other classification in this section of the code.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas of this class: (a) wherein the total window area is less than 6 per cent of the floor area or the total area of outdoor openings is less than 3 per cent of floor area; (b) wherein the available floor area is less than 50 square feet for each normal occupant; (c) wherein heat or odors would otherwise be present in sufficient quantities to be injurious to the health, safety or welfare of the employes or frequenters affected.

Minimum Air Supply. Where positive ventilation is required, the minimum air supply for occupied areas of this class shall be not less than 0.5 C.F.M. per square foot of floor area.

Sales Rooms.

Scope. This classification shall be understood to include all sales rooms and other occupied areas of similar character.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas of this class unless the aggregate of outdoor openings is more than 3 per cent of the floor area served, and provided that such outdoor openings are arranged so as to cause air circulation throughout the respective rooms.

Minimum Air Suppy. Where positive ventilation is required, the air supply provided and maintained for occupied areas of this class shall be not less than 1 C.F.M. per square foot of floor area on the first floor, with a cumulative decrease of 10 per cent for each floor above the first floor, and a cumulative increase of 10 per cent for each floor below the first floor.

Garages.

Scope. This classification shall be understood to include all public garages and all employment areas in any building housing three or more motor-driven vehicles. *Note*: This order is particularly applicable in case of vehicle provided with internal-combustion motive power.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas in this class. *Note*: Suitably-inclosed areas used only for storage of new motor vehicles which do not contain fuel or storage batteries need not be ventilated under this clause.

Minimum Air Supply. The air supply provided and maintained for all occupied areas of this class shall be not less than: (a) where ventilation is effected by displacement of the contaminating gases, 1.5 C.F.M. per square foot of live storage area and 3 C.F.M. per square foot of repair area served; (b) where ventilation is effected by dilution of contaminating gases, 15 C.F.M. per square foot of live storage area, and 30 C.F.M. per square foot of repair area served.

General Requirements. The products of combustion and vapors or gases from fuel or batteries shall be removed promptly and effectively from the breathing zones of employes and frequenters, and there shall be at all times not less than 2,500 cubic feet of fresh air for each cubic foot of carbon monoxide in such breathing zones. *Note*: (a) carbon monoxide gas is invisible, odorless, tasteless and a deadly poison. It is slightly lighter than

air. Gasoline fumes are nearly four times as heavy as air.

Places of Employment, General.

Scope. This classification shall be understood to include all places of employment not classified elsewhere in this section of code.

Positive Ventilation Required. Positive ventilation shall be provided and maintained for all occupied areas of this class (a) where the available floor space is less than 75 square feet per normal occupant; (b) where heat, smoke, gas, dust, fumes, vapor, foul air or other contamination would otherwise be present in the air in sufficient quantities to obstruct the vision or to be irritating or to be injurious to the health, safety or welfare of employes or frequenters; (c) where industrial poisons are to be used, stored or handled, or would otherwise be present in the breathing zone.

Minimum Air Supply. The air supply provided and maintained for occupied areas of this class shall be not less than an amount sufficient to make up for contamination of air due to the nature of the work being carried on, plus (a) 1 C.F.M. per square foot of floor area; (b) in no case less than 30 C.F.M. per normal occupant.

Exhaust Systems Required. Positive exhaust systems shall be provided and operated for and at all sources of air contamination in occupied areas of this class, unless the air which any employe or frequenter must breathe is otherwise kept pure, fresh and clean.

Dormitories and Wards.

Scope. This classification shall be understood to include rooms equipped with more than two beds.

Window Ventilation. Window ventilation may be relied upon for occupied areas of this class wherein the available window area is more than 10 per cent of the floor area served and the outdoor openings therethrough is more than 5 per cent of the floor area served.

Penal Institutions.

Scope. This classification shall be understood to mean and include areas of compulsory occupancy in penal institutions, such as cells and corridors and similar areas.

Minimum Air Supply, Mechanical Ventilation. Where mechanical ventilation is required for occupied areas of this class, the air supply shall be not less than 0.5 C.F.M. per square foot of cell area served. *Note*: workshops in penal institutions shall be served in the same manner as places of employment housing similar industrial processes, as classified elsewhere herein.

Gravity Ventilation Permitted. Gravity ventilation using direct gravity inlets and gravity outlet ducts, shall be considered permissible for occupied areas of this class wherein each cell or individual part of cell comprises more than 100 square feet of floor area, or a total direct outdoor opening area equal to not less than 10 per cent of the floor area. *Note*: Properly-arranged operative windows opening directly from cell to out-of-doors may be relied upon as direct gravity inlets, under the foregoing item.

Mechanical Ventilation Required. Mechanical ventilation shall be provided and maintained for all occupied areas of this class having less than 100 square feet of floor area, or total direct outdoor opening area equal to less than 10 per cent of the floor area, for each cell or individual part of cell.

Classified Equipment and Particular Requirements Therefor.

The final section of the code covers such matters as fresh-air intakes, air purification apparatus, heaters, boilers, furnaces, jacketed stoves, stack heaters, chimneys, fans, ducts, dampers, positive inlets and outlets, direct radiation, indirect radiation, humidifiers and piping. Following are the principal requirements in this section:

Air Purification Apparatus. The construction, design and control of all air purification apparatus shall be such as to insure consistent maintenance and operation thereof. Dirty water, shall not be recirculated through sprays affecting air used for ventilation purposes, and not less than 20 per cent of air washer water used shall be renewed during each day of operation, exclusive of make-up water; and the water reservoir shall be emptied and thoroughly cleaned and refilled with fresh water after each week's operation.

Under "Ducts" it is provided, among other things, that inlets in floors shall not be considered permissible in areas classified under "School Rooms," nor in other areas where subject to contamination of inlet air incident to foot traffic or other floor-line conditions. Outlets in floors shall not be considered permissible in such areas, nor in other areas where air passing therethrough is at any time recirculated before delivery to outside atmosphere; nor in conjunction with gravity outlet ducts, unless adequately protected against contamination incident to foot traffic and other floor-line conditions.

Humidifiers. Humidifiers used in conjunction with ventilation systems shall be so located and arranged that they will effectually treat all the ventilation air handled by the respective ventilation systems, unless otherwise permitted by the Industrial Commission. Humidifiers shall be calculated, maintained and operated on the basis of not less than 40 per cent relative humidity, measured at 70 degrees Fahrenheit for total air supply, unless otherwise directed by the Industrial Commission. The reservoir capacity in connection with water-pan humidifiers shall be not less than enough for one normal day of operation. The water level in water-pan humidifiers having supplementary reservoirs or supplied from pressure systems, shall be controlled and maintained by means of float valves, or similar automatic devices, in the water supply lines outside of the heat chambers. The evaporative surface of water-pan humidifiers shall be not less than equivalent to 200 square inches of water-pan evaporative surface per 1,000 C.F.M. of air supply to be treated. Water-pan humidifiers shall be located in the heated air chambers of heater units, or in similar location.

Be right—or be left.

Equipping Power Plant Engine Room Machinery With Oil Dripping Pans.

Pattern Shows Oil Dripping Pans Which Are Often Made of Sheet Copper for Good Appearance.

Written Especially for AMERICAN ARTISAN by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

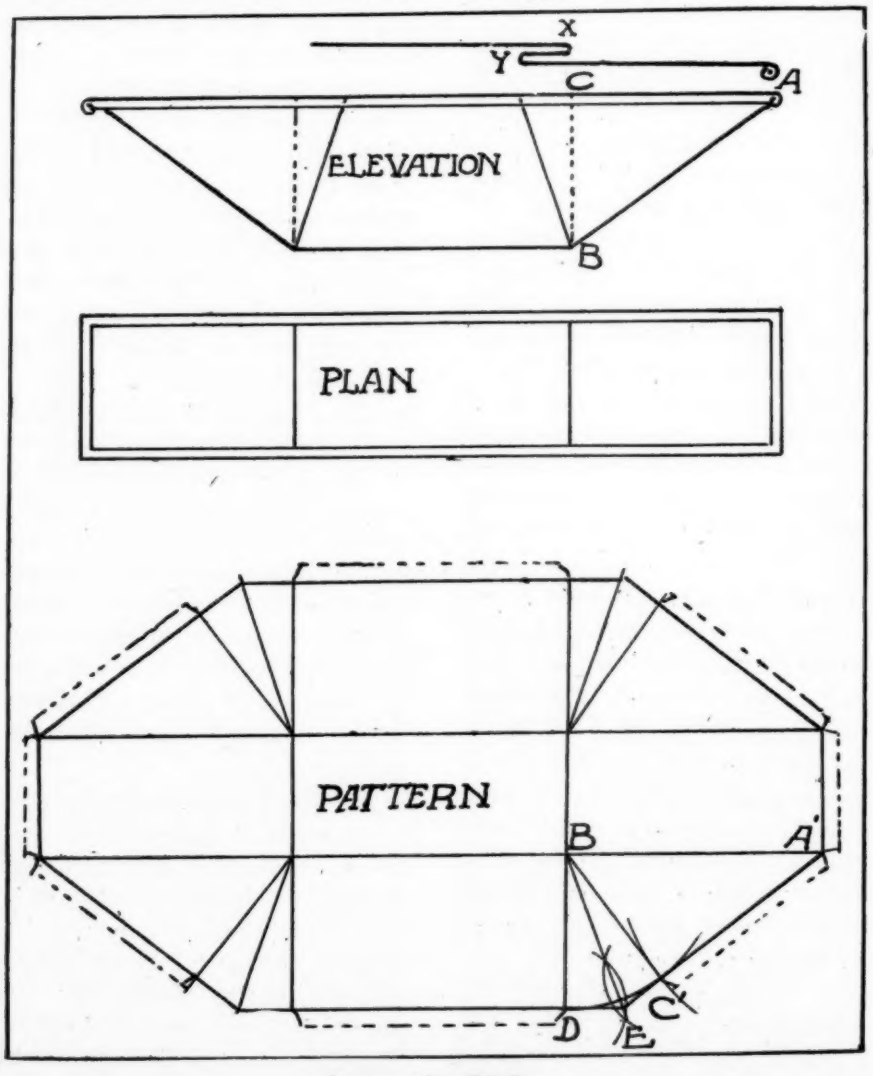
IN engine rooms of power plants and manufacturing establishments various schemes are used for catching dripping oil. Sometimes large semi-circular pans are made to fit over fly wheels or other wheels, so as to catch drippings. These pans are often made of copper so they can be polished and will always look well. In the illustration we have a pan that looks simple in nature and would be simple if it were not for the laidover lap joint. The elevation shows that the bottom and the top are straight, while the ends are slanting and the seam is made in the middle as at C-B with the corners lapped over as the detail X-Y shows. The plan shows all sides straight, so that only the ends are flary.

Now, at first thought about every workman will think what a simple problem this is, and indeed it is, but the writer invites about twenty-four out of every twenty-five mechanics to scratch their heads figuring out how to lay out this little over-lap joint, the condition being though not to read any further than right here.

When you have made the effort we will explain by using the principle of triangulation in the solution of this corner. We understand laying out of the pattern for the body of pan without further trouble, but when it comes to the corner more difficulty is met with. Observe the slant of elevation A-B has the same as B′-A′ in pattern and that the rise B-C is the same as B′-D in pattern. Now, in folding over the metal as at X-Y the edge X remains the same which is the same as D in pattern. It is then the edge that folds back to Y and then back to A that requires treatment. Now as the projection of elevation is equal to A-C so we pick this distance and set it in pattern as A′-C′ and strike an arc. Then we take the elevation attitude as B-C or set dividers to B′-D and strike an arc to cross as at C′. This then establishes the length of the top line of pattern. Now the folding over process between C′ and D is doubled; we, therefore, bisect this arc in point, E which gives the bending line for doubling over. Therefore the line D-E is straight with the side of body, while the line E-C′ is a continuation of the line A′-C′, and this is the pattern for the corner.

After this corner is laid out, the corner proper is cut out and used as a pattern for marking off the rest of the corners. Laps for wiring must be allowed extra, similarly, as shown. The amount, allowing for the edge, for enclosing the rod is made equal to two and one-half times the diameter of rod. This amount of metal will nicely enclose the rod and not change the height of the pan.

Is the sign outside your store indicative merely of age and conservatism, or is it indicative of progress and aggressiveness?



Patterns for Oil Pan

Successful Apprentice Training Must Be Based on Cooperative Efforts of Capital and Labor.

Frank Cushman Says Apprenticeship Must Be Made More Attractive to Boys of Good Intellects.

THE following address on Apprenticeship and the Public Program of Vocational Education was delivered by Frank Cushman, chief of the Industrial Education Service of the Federal Board for Vocational Education, before the members of the National Association of Sheet Metal Contractors in convention at Washington, D. C.:

Fifty years ago it was fashionable for all boys to learn a trade, but for the past twenty-five or thirty years we have been passing through a cycle which has been characterized by an absence of interest on the part of most American boys in any of the skilled trades. Throughout this period there has been a certain amount of interest in apprenticeship, but the activities have been confined largely to the machine trades rather than to the building trades. For example, most of the railroads of the country have had in operation systems of apprenticeship for railroad shop men. Also a few of the larger machine tool industries have consistently maintained apprenticeship training. For the most part, however, we have depended upon European countries to train our skilled workmen, and apprenticeship in the old sense has generally been considered a thing of the past. This decrease of interest in apprenticeship occurred concurrently with a tremendous increase in high school attendance.

The result of the work of the Douglas commission in the state of Massachusetts in 1906 indicated that an emergency was developing with regard to apprenticeship and other phases of trade and industrial education. At the same time that the Douglas commission was investigating the need and formulating recommendations for the state of Massachusetts the National Society for the Promotion of Industrial Education was organized to arouse interest throughout the country in support of an adequate system of trade and industrial education. This society was composed of manufacturers, organized labor, employers of skilled labor, and progressive educators. The organization of President Wilson's Commission on Vocational Education was to a considerable extent due to the activities of this society. In 1914 the commission made a report which was the basis for the National Vocational Education Act, which was passed by Congress and signed by the President on February 23, 1917. The purpose of this brief historical sketch is to draw attention to the fact that the recognition of the need for vocational education in this country is not a development of the past year or two.

Notwithstanding the fact that vocational education under public supervision has been growing by leaps and bounds for the past seven years hardly a week passes that we do not come in contact with persons who have never heard that there is any such organization as the Federal Board for Vocational Education at work on the problems of apprenticeship and all phases of trade and industrial education. This situation may be due to the fact that vocational education has not been well advertised. Granting that this may be true, the only explanation I have to make is that the federal government, through the Federal Board for Vocational Education, and the states, through state boards for vocational education, working on a coöperative basis, has been so busy trying to do the job that was outlined for it in federal and state legislation it has not felt the necessity for an advertising campaign. The procedure has been consistently followed of letting the results speak for themselves, upon the assumption that sound developments in vocational training must inevitably receive recognition. Furthermore, I am sure there has been a feeling on the part of the great majority of the men at work on this problem that there was no formula or series of formulas which could be worked out for the purpose of solving all problems of trade and industrial training. And we have never assumed the risk of discrediting vocational education by making extravagant claims or promises to accomplish the impossible.

All States Accept National Vocational Education Act.

During the first year of the operation of the National Vocational Education Act all of the forty-eight states had accepted its provisions and entered into coöperative relationship with the federal board. During this first year 164,000 persons were enrolled in schools and classes which measured up to the minimum standards specified in the federal act. In June, 1923, this enrollment had increased to 537,000, and of this total number 326,000 were enrolled in schools and classes designated as trade or industrial.

In view of the present developments in vocational education it is interesting to go back to the 1914 report of the President's commission and read the arguments therein set forth in support of a national program of vocational education. some of the needs which were discussed in this report are as follows:

1. To conserve and develop our natural resources.
2. To prevent waste of human labor.
3. To provide a supplement to apprenticeship.
4. To increase wage-earning power.
5. To meet the increasing demand for trained workmen.
6. To offset the increased cost of living.
7. Vocational education is a wise business investment.
8. Our national prosperity is at stake.

In addition to the preceding economic reasons why it was imperative to develop a better system of vocational education in this country,

the following points were discussed for the purpose of bringing out the social and educational needs for vocational training:

1. To democratize the education of the country.

2. To exert a much needed influence on the aims and methods in general education.

3. To stabilize employment conditions and reduce social and industrial unrest.

4. To make possible higher standards of living on the part of workers.

The arguments advanced to indicate the need for vocational education in 1914 are just as true today as they were ten years ago. In fact, in many cases the arguments apply with greater force today than they did in 1914 because of the changed economic situation, the greatly increased cost of living, and the scarcity of skilled workers due to the World war and recent restrictions upon immigration. The latter has practically eliminated the possibility of securing skilled workmen from Europe.

Interest Revival in Apprenticeship Nationwide.

The present revival of interest in apprenticeship for the skilled trades is nationwide. The interest of employer organizations, labor organizations, and public school authorities is widespread. Definite progress in the training of apprentices under well directed plans is being made in New York, Boston, Philadelphia, Cleveland, Detroit, Chicago, Milwaukee, Seattle, Portland, Los Angeles, and many other cities. The organization and work of the American Construction Council may be mentioned as further evidence of the nationwide interest in apprenticeship in the building trades.

This paper would have little value if it failed to point out some of the essential points which characterize practically every successful development in apprentice education for the building trades throughout the United States. In line with its responsibilities for promoting vocational education, representatives of the federal board have within the past year conducted conferences in various sections of the country for the purpose of assisting local communities in making plans which would have at least a chance to succeed because of the fact that they were fundamentally sound.

The following points have been agreed to in practically all cases where representative employers, labor leaders, and school people have been brought together for a discussion of this problem:

1. *Any successful plan for apprentice training should be based upon the coöperative effort of employers, organized labor, and the public schools.* Where such coöperation has not been secured the attempts to set up an effective system of apprenticeship have been largely failures. Where a group of employers decide to have their own school without regard to the interests of labor, or at least without consulting labor and attempting to secure its coöperation, trouble usually results. Where labor organizations attempt to set up a program of training for apprentices without the coöperation either of employers or of the public schools results are not what they could be with such coöperation. Furthermore, there is no reason why a labor organization should pay the cost of training apprentices inasmuch as vocational efficiency is profitable not only to the man himself, but to his employer and also to the community in which he lives. As a rule, where public schools offer training without securing the interest and support of both employers and labor the program is not considered seriously. Too often trade instruction in the public schools has been unjustly condemned and discounted both by employers and employees because of the fact that school officials were attempting to deal with the problem without first having secured the support of the parties whose interests were most affected by the work.

A successful apprenticeship program, therefore, must be the coöperative effort of employers, labor, and the public schools. While these three groups are perhaps the most important factor, there are other interests in every city which are usually ready and willing to coöperate in advancing a program of apprenticeship for the building trades. In many places architects have been the leaders; in others, manufacturers and dealers in building materials and supplies, engineers, real estate men, and bankers have actively supported the movement.

2. Next to the need for securing the coöperation of the parties whose interests are affected by vocational efficiency in the building trades, the most important consideration is *to make apprenticeship more attractive to boys through proper incentives.* Much has been said recently about the breakdown of apprenticeship, the disappearing apprentice, and the need for doing something to direct boys away from white collar jobs. The trouble is not entirely with the boys. It is useless to blame the American boy for not becoming interested in learning a skilled trade. The skilled trades have not been made sufficiently attractive to him. Too few reasons could be advanced as to why an intelligent American boy should want to become an apprentice. The boys are all right and have just as much common sense as boys of past generations have had. All that is needed to secure an actual revival of interest in apprenticeship in the skilled trades is to make apprenticeship so attractive that it will compete with other lines of opportunities and other lines of employment. Where proper incentives have been supplied—such as a guarantee of opportunity to acquire a mastery of the trade, assurance of continuous employment during apprenticeship, and provision for acquiring manipulative skill in the trade and for learning what may be called the technical side of the trade through instruction supplementary to that received on the job—there has been no difficulty in securing apprentices.

High Wages Alone Not Sufficient to Attract Boys.

Some of these incentives are quite as potent in securing and maintaining the interest of a boy in becom-

ing a skilled worker as the wages paid. High wages will not get and hold the right type of employee if the wage is the *only* incentive provided. Where apprenticeship is promoted on the basis that the apprentice will secure a real opportunity to become a master of his chosen craft, not only from the practical but also from the technical side, there is no shortage of boys who will become interested in the proposition. Such a complete training calls for both practical experience on the job and instruction in related subjects in a classroom, either through evening or part-time schools.

Another point, boys who may be interested in becoming apprentices in the building trades are not ordinarily found in high schools. Many attempts to set up systems of apprenticeship have failed because of the unwarranted assumption that all of the boys who might wish to become apprentices were already in high schools, and consequently the problem would be to interest some of these boys in a program of apprentice training. In most cities not more than 20 to 30 per cent of the boys who finish the elementary school enter high school, and of those who enter, as a rule, only a relatively small percentage graduate. For the most part, therefore, it is useless to look for apprentices either among the small group who graduate from high school or among those who are expecting to finish their high school course. In this connection it is well to remember that dropping out of high school is not in itself an indication of inferior mentality.

National and Local Organizations Interested.

The most encouraging thing about the present situation is the interest that national and local organizations are taking in apprenticeship. Apprenticeship is probably being conducted at the this time in a more intelligent way than it has ever been conducted in the history of industry. While the present crisis was to a certain extent anticipated it is only within the last year or two that organizations of employers have become keenly interested in the problem. Organized labor, it should be pointed out, has always stood for thorough and adequate training of apprentices in all of the organized trades. Craft pride has been responsible in part for this. Real labor leaders have always been supporters of vocational education under public control for the purpose of keeping up desirable standards of workmanship in the various crafts as well as for promoting the training of apprentices.

Each of the forty-eight states now has an organization which is ready to coöperate and to assist in every way in the promotion of better apprenticeship training. Funds are available for the purpose of defraying the expenses of such training. It was long ago recognized that the interest of the public in vocational efficiency justified the utilization of public funds for vocational education. The federal government is doing its share in the promotion of this work, and it is also true that every one of the forty-eight states is doing or is prepared to do its share.

The one thing needed at this time to put in operation an adequate program of apprentice training in all of the building trades is coöperation. While much can be done from a national standpoint, the problem is in many respects strictly a local one that must be worked out in each city according to the particular conditions there prevailing. Enough information as to what needs to be done is available to enable any city to set up and operate an effective program, and any city that does not have within the next twelve months a real program of apprenticeship in the building trades will have to take the blame upon itself. If the program fails it will be due more to a lack of coöperation on the part of contractors, labor, and the public schools than to any other factor.

You want to have a store of your own some day, don't you? Do you realize that the habits you form as an employe will stick to you as a proprietor?

Pennsylvania Sheet Metal Auxiliary Will Meet July 23 at Pittsburgh.

Oliver Brooks, secretary of the Distributors' and Salesmen's Auxiliary of the Sheet Metal Contractors' Association of Pennsylvania, has sent out notices calling attention to the meeting of the auxiliary, which will take place at the same time as that of the association—July 23 to 25, inclusive, at the Seventh Avenue Hotel, Pittsburgh.

Frye Says Vanasdal Lost His Bearings on the Tank Problem.

The latest edict from the "heartless Harry Frye" is that the man down between the tanks will be placed on bread and water until he can prove that he has solved the problem while still between the tanks.

Harry, you are rapidly gaining the reputation of a man without a conscience; in fact, you may yet be classed with the men of the Spanish inquisition.

Here's Harry's reply to Vanasdal:

To American Artisan:

I note a new solution of the tank problem on page 75 of American Artisan of June 21st. Now, frankly, I believe Mr. Vanasdal has tricked us by solving the problem in the following manner and passing the solution to his man between the tanks.

The mind's eye of the sheet metal man must be great for creating imaginary lines, but to create a central point in that space between the tanks would be more difficult than the proverbial finding of the needle in the hay stack. It is possible, but not probable.

It was much easier for Mr. Vanasdal to make a drawing as per his sketch, connect the centers of the circles with lines passing through the tangent points, then bisect the angles of the triangle so formed, thereby locating the point equidistant from the tangent points. Then measure lines 8 and 2, form the

equation, and, Zip, the problem is solved with the greatest ease.

But it is not quite so easy as this for the man confined between the tanks. Now, this solution by Mr. Vanasdal does not fulfill the conditions imposed unless it can be shown that the man can reach the points of tangency with his rule (and this he cannot do and a method of finding the equidistant point), which is not a point in the center of the space while confined between the tanks.

This man will be put on bread and water until he proves that he solved the problem while confined between the tanks. The problem as proposed restricts him to the use of the space between the tanks, a pocket rule and a 30-foot string.

HARRY FRYE.

Tullahoma, Tennessee.

Low Cost, Durability, Artistic Appearance, Adaptability Are of Greatest Interest in Specifying Metal on Outside Jobs.

In Europe Leaders and Gutters Contrary to American Methods are Made From Sheet Metal on the Job.

C. F. BEATTY, advertising manager of the New Jersey Zinc Company, 160 Front Street, New York, has set forth in the following article useful information for architects and roofing contractors on the use of leaders and gutters, flashings, valleys, ridge rolls and shingles made from Horse Head Zinc.

Leaders, Gutters, Flashings, Etc.

The facts of greatest interest to architects in specifying the metal to be used for eaves troughs, conductor pipes, valleys, flashings, etc., are durability, low costs, adaptability and artistic appearance.

Rolled zinc was first manufactured in Europe in 1805. Six years later rolled zinc was used for the metal roofing work on the Church of St. Barthelemy at Liege, Belgium, by the well known Vieille-Montagne Company, and an examination made in 1900 showed the metal to be still in excellent condition. Zinc roofing work spread rapidly to France, England, Germany, Austria and the Scandinavian countries, where rolled zinc soon became universally used for these purposes.

Notable Buildings Equipped with Zinc.

Among the more notable European buildings on which rolled zinc was used for the metal roofing work are:

Church of St. Barthelemy, Liege; Gare du Nord, Brussels; Zoological Gardens, Antwerp; Kursaal, Ostend; German Imperial Palace; Haymarket Theater, London; Universities of Bonn and Berlin; Canterbury Cathedral, England; Hotel de Ville, Paris.

European and American Methods Contrasted.

In European countries where labor is cheap, the common practice is to take ordinary sheet zinc and make leaders, gutters, etc., on the job, seams and joints being soldered by hand. In America, where labor conditions are different, tinsmiths have come to demand manufactured articles made in standard shapes and sizes with locked seams and one-piece elbows. This requires pure metal devoid of brittleness.

With the advent of rolled zinc, which will analyze better than 99.9 per cent pure and can be worked as easily as copper or soft steel, brittleness, which has prevented the successful use of zinc in the past, has been removed. "Horse Head" zinc for roofing purposes can now be obtained in widths up to twenty inches and either in flat lengths or long coils. Spouting made from this zinc, when erected in accordance with the following carefully prepared specfications, will insure a lasting job at minimum costs.

Zinc spouting on exposure to the weather soon takes on a silvery gray coating which gradually darkens with age and which acts as a protection against further corrosion by the elements.

Paint may be used when desired for artistic effects, but is not necessary for protective purposes. Where paint is to be used the metal should first be treated with a solution of copper acetate or copper sulphate in water (six to eight ounces per gallon). After this has dried the resulting powder should be brushed off and paint applied in the usual manner.

The use of zinc eliminates the staining of marble, white, or stucco buildings which is an undesirable characteristic of many other metals.

The material cost of "Horse Head" zinc spouting is about midway between that of copper and galvanized steel.

Specifications.

All eaves troughs, conductor pipes, ridge rolls, valleys, flashings, etc., shall be made from rolled zinc, cornice crimped.

The metal used for eaves troughs, conductor pipes, ridge rolls and accessories, as well as valleys and flashings, shall be not less than 0.024 inch thick (No. 11 zinc gauge).

Eaves troughs shall be supported by hangers of the shank and circle type which shall be heavily galvanized or tinned. These shall be spaced not more than two feet apart and not more than eight inches from each end or corner.

Conductor pipe sections shall be hung preferably by heavily galvanized or tinned adjustable fasteners of the rack and pin type. These shall be carefully soldered to the pipe and located, one to each section, about two feet from the lower end. Galvanized or tinned hinged hooks may be used, and shall be similarly spaced and tacked with solder to prevent slipping.

Ridge rolls shall be fastened to the roof by means of clips of rolled zinc and the section shall overlap not less than two inches.

All flashings used on masonry, concrete and stucco shall be laid on

a good grade of waterproof sheating paper. The reglet in which the cap flashing is inserted shall in every case be pointed up with neat cement or elastic roofing cement.

The valley sections shall be attached to the roof by means of rolled zinc clips. The nails holding the shingles or other roofing material must not pass through the valley.

Shingles and metal tile shall be made from rolled zinc not less than 0.018 inch thick (No. 9 zinc gauge). They shall be laid according to the manufacturer's specifications and all valleys, ridges, flashings, etc., shall be made of rolled zinc.

Note: In all cases where zinc is used in connection with another metal in exposed positions, care must be taken to prevent actual contact between the metals because of the danger of electrolytic action with resulting corrosion of the zinc. Satisfactory insulation can ordinarily be secured by the use of Portland or roofing cement, or asphaltum paint.

Special Notice: The New Jersey Zinc Company does not recommend the use of zinc leaders and gutters, elbows, flashings or valleys on buildings which are roofed with red cedar or redwood shingles.

Colvin Shows How Manufacturer Can Educate Installer Into Doing Better Furnace Work.

Gives A Solution to the Frye Tank Problem As Well and Enjoys Reading Artisan.

DAN S. Colvin, Moorhead, Minnesota, pays AMERICAN ARTISAN a compliment and offers some good suggestions for the benefit of other readers.

His letter follows:

To AMERICAN ARTISAN:

Please find check for which send me a copy of "Estimating Sheet Metal Work," by Neubecker and Hopp, and extend my subscription to AMERICAN ARTISAN for another year.

I enjoy reading AMERICAN ARTISAN and find it a great help to me in my work, as it keeps me up-to-date and gives the latest developments in the warm air heating business, or should I say science, perhaps both, for surely both are lacking on many jobs.

I notice from time to time articles dealing with this subject and what the manufacturer can do to educate the small installer into doing a higher class of work and a better knowledge of the heating game, which includes both business and science, and both of which are essential to manufacturer and installer alike.

Manufacturers are looking for ways and means. Why not include a subscription to AMERICAN ARTISAN with every contract written with the dealer and let natural results follow. Reading a good journal will not make a poor installer any worse and I think that it would be the cheapest course of education the manufacturer could invest in, even though he goes as far as to include every man in the dealer's shop. It will mean better installations surely and better installations mean more business.

Dan Colvin Says:

"Manufacturers are looking for ways and means. Why not include a subscription to American Artisan with every contract written with the dealer and let natural results follow. Reading a good journal will not make a poor installer any worse and I think that it would be the cheapest course of education the manufacturer could invest in, even though he goes as far as to include every man in the dealer's shop. It will mean better installations surely and better installations mean more business."

One could go on indefinitely on this theme, but it has all been covered many times by abler men so will close.

Yours very truly,

DAN S. COLVIN.

P. S.—Harry Frye's tank man must be starved beyond hope of rescue ere this, but will enclose figure and solution that possibly would take him out.

In which we have a given circle of unknown diameter to figure the diameter from an arc of circumference with the aid of a piece of string and a pocket rule.

Stretch string to form tangent EF with E and F equidistant from point of tangency C.

Measure DE at right angles to EF and measure EC $\sqrt{DE^2 + EC^2} = D.C.$

DE = BC by construction DB = EC by construction as they are opposite sides of a parallelogram.

Assume BC to extend to A as a diameter and DA forming the third side of right triangle inscribed within a semi-circle, DAC.

DAC is similar to DBC. Two right triangles having a common acute angle.

Then DE : DC :: DC : AC.

DE and DC being known solve for AC and you have diameter of one tank, repeat for each tank and come up for a square meal.

The above can be done to fairly accurate measurements and a simple calculation. The element of error in measurement ought not to be more than 1 per cent, which would not put the job into the red ink items.

William Scott Is Beginning to Feel Sorry for Frye's Tank Man.

The man down between the tanks, imprisoned by Harry Frye some weeks ago, sure is "A. W. O. L." and we're almost convinced that if he is to come out alive, it will be up to Harry to get him out.

Here's what William Scott, 201 Eighth Avenue, Juniata, Pennsylvania, has to say:

To AMERICAN ARTISAN:

Alas! the helpless workman incarcerated in the tank prison by the cruel Frye must yet remain in "durance vile," in spite of I. C. Vanasdal's effort to release him.

The imprisoned man can't "measure the distance from the point of tangency to the center," because he doesn't know where the center is. Furthermore, he could not use Vanasdal's formula, because he lacks pencil and paper.

So, I propose that Frye, who put the man in, be required to get him out.

WILLIAM SCOTT.
Juniata, Pennsylvania.

Jack Stowell Runs School of Instruction for His Employees After Working Hours.

Aurora Sheet Metal Contractor and Furnace Installer Helps His Men to Become More Efficient.

A LITTLE more than two years ago a sheet metal contractor in Aurora, Illinois, wanted to go out of business, and a young fellow by the name of Jack Stowell bought him out. The shop was located halfway down an alley. There were a few tools and a small stock of sheets and tinplate. So far as "good will" was concerned, that did not enter into the transaction, at least in the "consideration."

Jack had $200 in cash, and so he had to give the retiring contractor a chattel mortgage in order to secure the shop.

In 1923, his first full years, he did over $40,000; in the first twelve months he had about $26,000 worth of work. This year, so far, every month has shown more than 100 per cent increase over the same months of his first year, so he is figuring on somewhere like $60,000 for 1924.

Not so bad for a fellow who had little to begin with, outside of ambition and a desire for learning how jobs ought to be done in order to give satisfaction—and a determination to do them that way.

A few days ago I went out to see Jack and to listen to a lesson on furnace installation that he was giving his employes.

They meet every Tuesday at 4:30 p. m., right after quitting time—on their own time—to learn something of the "inside workings" of their trade.

Incidentally, let me say here, that Jack Stowell is not a teacher of the old type. His class is more of an experience meeting. Of course, the students have to prepare themselves for the lesson, but the "recitations" are carried on with the help of everybody in the class.

For example, that day's lesson had to do with the installation of a furnace for a house, the floor plan and dimensions of which had been given out the week previous.

Every man, salesman, journeyman, helper, apprentice, truck driver—had prepared a sketch showing where the registers should be located, how large the cold air ducts and warm air pipes must be, the size and place for the furnace, all of it based on the rules of the Standard Code.

First the "heat loss" of every room was figured, or rather the figures called for. They did not agree in all cases, and the man who was wrong had it shown to him where his mistake was.

The room figures were added and the size of the furnace was chosen on the basis of grate area.

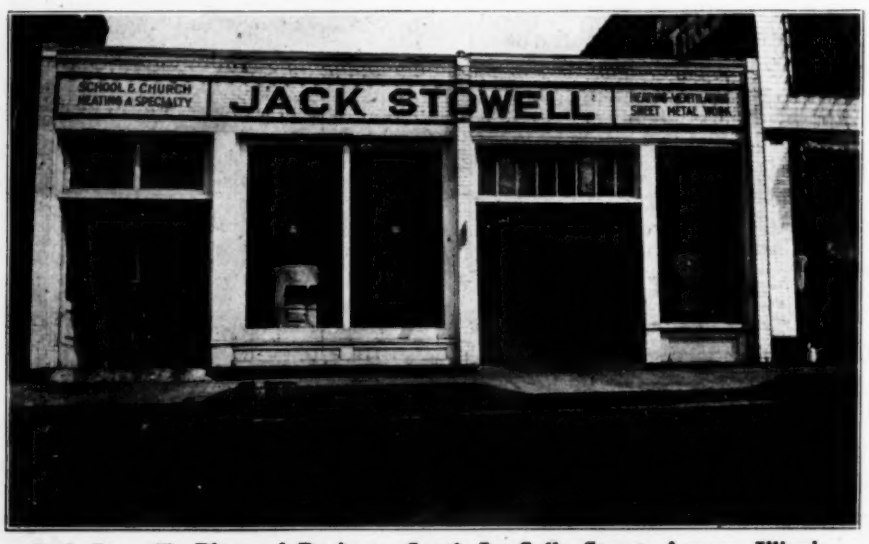
Next came the size and place of the registers and the size of the warm air pipes for the various rooms. Here again, there was considerable discussion.

After all the warm air registers had been placed, the matter of cold air ducts was given consideration, and it was decided to have three cold air faces, two of them opening into the same duct, running all the way between joists the long way of the house to a point about halfway, where it dropped to the basement floor and entered the furnace near the rear, the other duct coming from the center hall and entering the furnace casing at an angle of about 60 degrees from the first duct.

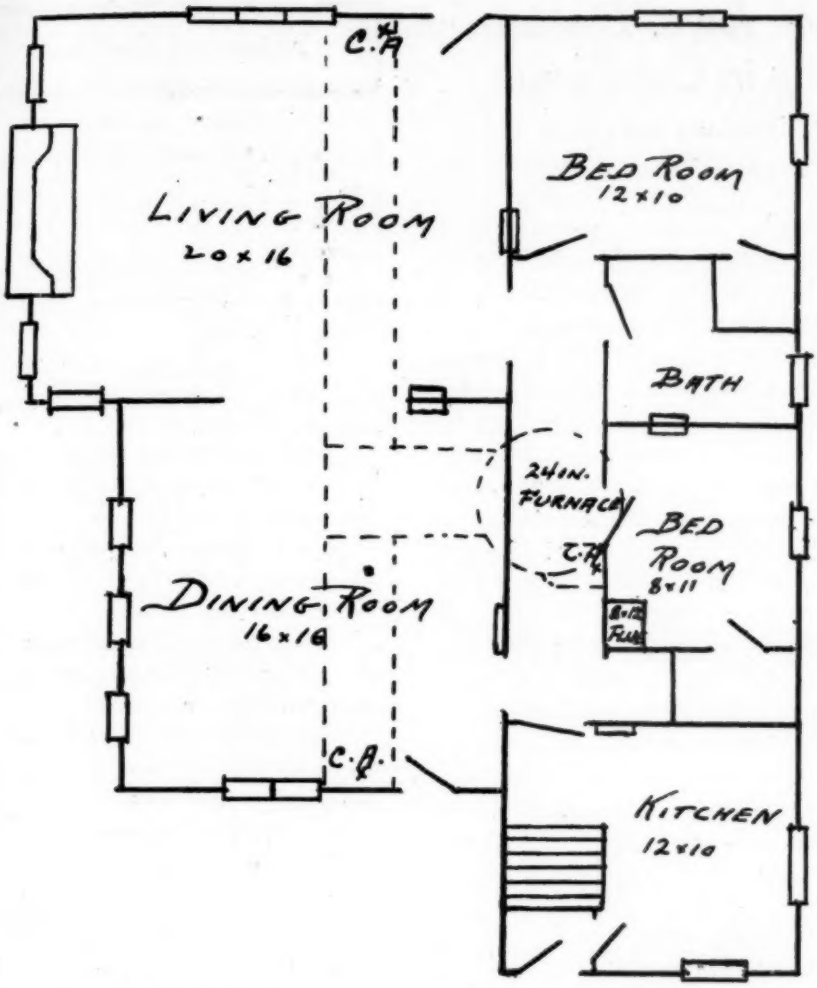
As a result, the location of the furnace was an easy proposition. It was placed almost in the center of the basement, but a little toward the right.

The accompanying floor plan shows how the problem was worked out.

The lesson took about two hours, and nobody gave any indication of being uninterested or waiting to get it over with. They were all on the job, because they had been sold on the idea that the time they spent on these lessons meant easier work, better pay and quicker advancement toward the time when they might follow in Jack Stowell's footsteps and



Jack Stowell's Place of Business, South La Salle Street, Aurora, Illinois.



Floor Plan of House That Was Used for Installation Lesson.

become bosses of their own business.

As a sort of introduction to the installation lesson, Jack gave a sales talk on his "Service Bond" proposition, a copy of the bond being distributed to each person in the room. From the illustration herewith our readers will easily see what it covers.

"From the standpoint of direct returns," he said, "I am not very much interested, because it is going to cost us almost every cent of the three dollars to pay for the printing and selling of these bonds for the bookkeeping and for doing the actual work of cleaning.

"But remember this—that when the first few years have passed after the installation of a new furnace, there will always be something that requires replacement, and in the case of an old installation even the first year of the bond will show sales of repairs and work and maybe even of a new furnace, and it is from these extra items that we will make our profit and have a chance to show our metal."

He then went on to demonstrate how much the sale of 100 bonds would mean in actual money, somewhat as follows:

100	Bonds, $3.00	$ 300.00
5	New installations ...	1,500.00
6	New firepots	210.00
10	New smoke pipes....	150.00
8	Re-cementing jobs ..	160.00
10	New grates	200.00
	Total	$2,520.00

"These $2,520 will be added business, because we will be first on the job, and for the same reason, the second year will show up better."

I know that his argument is right, for I have seen the records of several installers, and they show even better results in actual practice.

Note that the contract is for three years.

Roy L. Meyers, Janesville, Wisconsin, Wants Sheet Metal Tool and Supplies Catalogs.

Roy L. Meyers, 1315 Pleasant Street, Janesville, Wisconsin, wants to get in touch with manufacturers of sheet metal tools and supplies. He is opening a sheet metal shop in Janesville at the address given heretofore.

He has been a sheet metal foreman for the Chevrolet Motor Company for three years in their construction plants at Janesville, Wisconsin; Buffalo and Tarrytown, New York.

Specimen Only

JACK STOWELL No 1009

SERVICE BOND

Aurora, Ill. May 25 1924

For, and in consideration of the sum of THREE ($3.00) DOLLARS per year, to be paid by the undersigned owner, when the work is done, to the firm of **JACK STOWELL, 12-14 South LaSalle Street**, the said firm of **JACK STOWELL** agrees to perform, on or before Sept. Tenth, of each year during the term of this bond, for the undersigned owner at his ~~or her~~ Residence at 234 E. Main St. the following services:—

1. To thoroughly clean the warm air furnace (Fox) (Name used)
2. To remove the smoke pipe connecting said furnace to flue, clean same.
3. To make an examination of the furnace, and make a report of its condition to the owner, with recommendations of any repairs or alterations, if same are needed.
4. To repaint all exposed castings
5. This work is to be done between the close of the heating season and the tenth of September.
6. Advance notice of workman's arrival is to be given to meet the convenience of the owner or tenant

This bond shall be effective from May 25 1924 until the above service has been completed in the year 1925

The owner in accepting this service agrees to make payment as specified above, and to notify the **JACK STOWELL FIRM** of any change of ownership.

In Witness Whereof, we have attached our signatures in duplicate this 25th day of May 1924

It is understood that any labor or material on repairs or alterations is to be an extra charge

Owner's Name James Smith

Address 234 E. Main St. Aurora

JACK STOWELL

By Mark

Service Bond Sold by Jack Stowell, Covering Cleaning and Inspection of Warm Air Furnaces.

Sheet Metal Contractors of Iowa, District 5, Hold Successful Meeting in Oskaloosa.

President R. E. Pauley, Secretary Thomson and Others Discuss Credits, Collections and Association Work.

DISTRICT Number 5 of the Iowa Sheet Metal Contractors' Association held its first District Conference on June 25th at the Chamber of Commerce rooms at Oskaloosa. The meeting was a success both in attendance and the enthusiasm shown by the different members present. The attendance being above the average considering the condition of the roads.

C. H. Graham, Oskaloosa, was re-elected permanent chairman of District Number 5, and presided at both the afternoon and evening sessions.

The afternoon session was called to order at 2 o'clock by Mr. Graham who introduced C. M. Porter, President of the Chamber of Commerce. Mr. Porter on behalf of the city of Oskaloosa extended a very warm welcome to the delegates present. This was responded to by R. E. Pauley, Mason City, President of the Iowa Sheet Metal Contractors' Association.

Mrs. K. C. Roberts, of the K. C. Roberts Hardware Company, Oskaloosa, gave a very interesting talk on Collecting and Accounting. Mrs. Roberts said that business is fast growing to a cash basis. She said that those who are in business are apt to overlook the most important part of their business, namely, the collecting part of it. If you are in the habit of doing honest work you need not be ashamed or afraid to go out and ask your customer to pay for the work you have done—the money is yours; go out after it. Make your word good to your customer and it will make you friends; it will help to cut down your charge accounts to a great extent.

H. R. Ritter, Grinnell, talked on Advertising and Selling. He was considerably in favor of making a house to house canvass in the spring; this, he said, would naturally lead to a lot of small repair jobs and incidentally a few new warm air heating plants. It is essential that we go out after the business, instead of waiting for it to come to us.

State Secretary Will Thomson gave a talk on the benefits of the district conference meetings, together with a summary of the Bookkeeping Accounting System which the State Association is selling directly to the Sheet Metal Contractors of Iowa. The system is considered by experts in accounting as the most yet efficient one now in use; this outfit is being sold to the Contractors at a very low figure and several systems have been sold up to date.

After the aforementioned talks came the Question Box which brought forth many questions of interest to the Sheet Metal Contractors and Salesmen present. Considerable discussion was manifested in the question, "Should sheet metal bids be separated from the general contract?" All those present were very much in favor of having the sheet metal bids separated.

The afternoon session adjourned at 5:30 p. m.

At 6:30 p. m. the delegates with their wives were entertained with a banquet and entertainment; the program consisted of songs by State Secretary Will Thomson, and card trick entertainment by Mr. Agnew,

President R. E. Pauley gave a talk on Association Activities; he spoke on what the Iowa Association had accomplished and its future aims, and asked for the cooperation of every Sheet Metal Contractor.

The evening session adjourned at 10:30 p. m. All those present spoke of the valuable information derived from the meeting and expressed the hope that the district arrange for another conference in the near future. Three new members were taken into the Association at this meeting.

Notes and Queries

"Arcola" Heaters.

From C. A. Kirchner, 638 Main Street, Tell City, Indiana.

Can you tell me who makes the "Arcola" heaters?

Ans.—American Radiator Company, 820 South Michigan Avenue, Chicago, Illinois.

Replating.

From Percy H. Smith, 201 12th Street, Fulton, Missouri.

Kindly inform me where I can get worn off nickel stove and range trimmings replated?

Ans.—Callender Soldering Process Company, 12 South Jefferson Street, Chicago, Illinois.

Non-Acid Soldering Flux.

From Sheet Metal Contracting Company, Wausau, Wisconsin.

Please advise us who makes a non-acid soldering flux to be used on tinplate, copper, etc.

Ans.—Special Chemicals Company, Highland Park, Illinois, and Callender Soldering Process Company, 12 South Jefferson Street, Chicago, Illinois.

"Alcazar" Oil Stove.

From George H. Frise, Odell, Illinois.

Can you tell me who makes the "Alcazar" oil stove, as I want repairs for it?

Ans.—Alcazar Range and Heater Company, Milwaukee, Wisconsin.

Repairs for "Brien" Furnace.

From W. B. Jordan & Son, Lynchburg, Virginia.

Kindly tell us where we can get repair parts for the "Brien" furnace.

Ans.—Northwestern Stove Repair Company, 654 West Roosevelt Road, Chicago, Illinois.

Address of May-Fiebeger Furnace Company.

From C. J. Wolf, 915 Monroe Street, Ft. Wayne, Indiana.

Where is the May-Fiebeger Furnace Company located?

Ans.—Newark, Ohio.

Have you ever walked out of a store disgruntled because no one paid attention to you or seemed to know you were waiting? Did you go back there again gladly and joyfully?

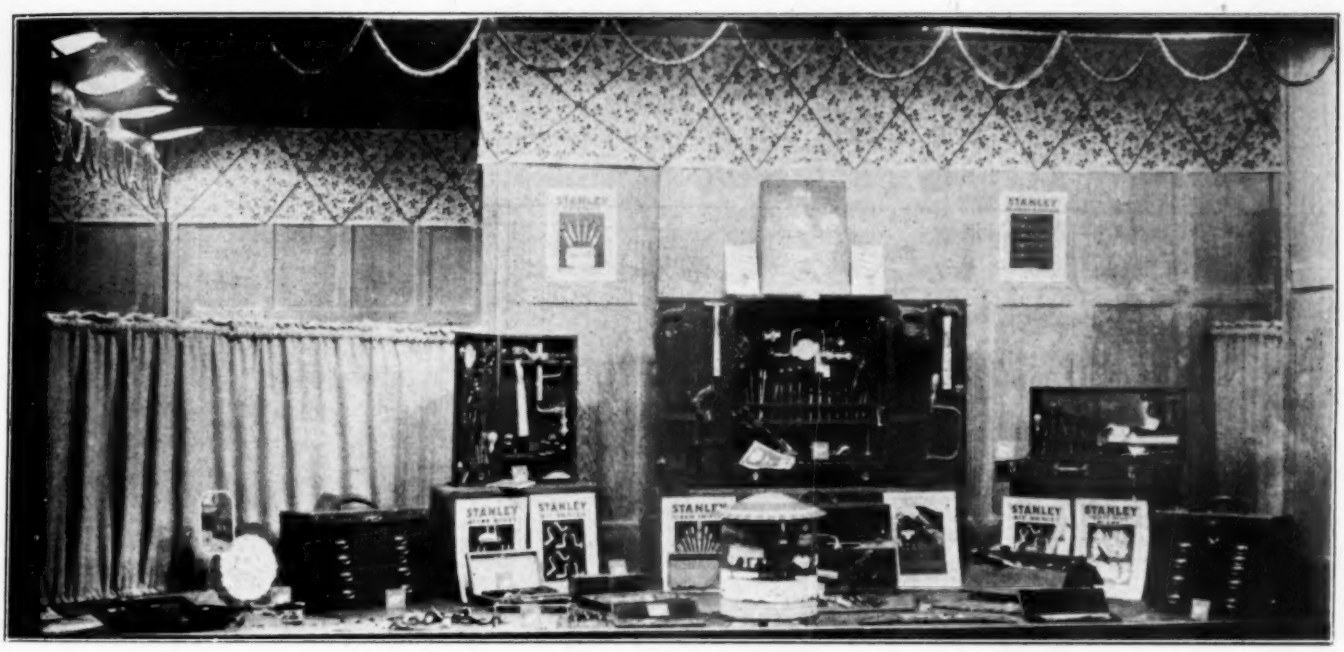
Brilliant Color Combinations Draw Attention to Carpenter's Tool Chest Display.

J. J. Snyder & Son, Brooklyn, New York, Caters to Manual Training Student Trade with Attractive Tool Chest Offering.

A WOOD tool display is always appropriate regardless of the time of year.

Gifts of tools to boys can always be made, although for a special boy tool or manual training tools would be best made just before the opening of school in the fall.

The window display shown in the illustration was arranged by Gustave F. Derse for the J. J. Snyder & Son, Inc., 2254 Bedford Avenue, Brooklyn, New York, and it was a competitive in the 1924 window display competition of AMERICAN ARTISAN AND HARDWARE RECORD.



Chesty? No Tool Chest Display for Carpenters and Manual Training School Students Arranged by Gustave F. Derse, for J. J. Snyder & Son, Inc., 2254 Bedford Avenue, Brooklyn, New York.

The following comment was made by the decorator:

"This display consists of gifts for the boy and man. Also one large tool chest in the center and on each side of it one mechanic's tool chest. These chests are standing on pedestals covered with green crepe paper. There is one medium sized tool chest on the floor in the center with one small set on each side of it.

"In the front of these are two tool rolls and three draftsman's drawing sets. On each end there is a machinist's cabinet. On the left is a small boy's tool chest. There are also a number of display signs advertising various tools.

"The top of the window back is covered with crepe paper and red and green cord in diamond shape. The front of the window has green rope effect paper looped across. The floor is covered with green crepe paper and a red border."

The Larger the Mark-Up, the Larger the Profit—?

One of the rankest fallacies that has got into the retail merchant's mind is that the larger the mark-up the larger the profit. Too many merchants overlook the fact that their cost of doing business of say, 25 per cent, cannot correctly be used to demand a 25 per cent margin of profit on each and every kind of merchandise sold, because it is the percentage of profit on one sale and not on the year's investment. A larger margin of profit needs to be added to the slow-moving materials and a smaller margin to the quick-moving.

The explanation of this fact is that items of selling expense depend primarily upon the stock of an article usually carried; whereas other items of selling expense depend principally upon the volume of sales of the individual articles.

1. Such items as rent, light, heat, depreciation and interest on capital depend primarily upon the stock carried at any one time.

2. Salesmen's salaries, service, expense and losses from bad debts depend primarily upon the volume of sales. If a hardware man carrying a stock of wrenches can increase his turnover from one to four times a year, it means that just one-fourth the rent will be charged against each unit of wrenches sold.

Send us copies of your advertisements.

Salespeople Should Know Their Stock and the Purposes to Which It Is to be Put.

Then They Will be Able to Intelligently Advise the Customer in Regard to Proper Use of Tools.

KNOW your stock. There is one crime committed in the small town store which is almost unforgivable. That crime is the failure of a clerk to acquaint himself with the stock carried and which he is supposed to sell.

Almost any person has intelligence enough to stand behind the counter with a clean collar on handing out whatever the customer calls for. That is not salesmanship.

When a customer, particularly a man, comes into the store for an article, he knows pretty well what he wants. He may not always know the name under which the article is identified in the hardware world, but he knows the purpose for which it is intended.

Familiarity with the goods in stock and with those used in the building or industrial fields will enable the clerk to glean from the customer's description just what he has in mind. He will be able to go still further and to suggest to the customer the proper article for his purpose.

The clerk should be so conversant with the work and materials used in that work that he will be able to question the customer intelligently and draw from him in that way an accurate idea of the purpose for which the article is to be used. He then can give the customer what he needs (whether that is what the latter asked for or not) and the customer will be much more pleased when he gets home and finds he can use the article immediately. Then, too, if he finds that the clerk gave him something other than what he wanted, but what he really needed, he will have greater respect for that clerk and for the store which employs him.

Then, there is another angle from which the clerk can win favoritism. When the customer buys a tool, the clerk should take it upon himself to instruct the customer in the proper use of the tool. The customer, unless he is a carpenter or a mechanic, will be found to know very little about the use of tools. He is just as apt to put a wrench on a nut and then in order to get more leverage he will put a piece of pipe on the end of the wrench. If the wrench stands the added strain, it is a miracle; if not, you may rest assured that you will get the blame for carrying inferior stock.

When a customer enters to make a purchase, the clerk should make every attempt possible to learn the purpose for which the article purchased is to be used if the purchaser seems to be at all in doubt about what he wants. In this way he will serve the customer to the best advantage and will win the confidence of his patrons.

NOT A BRAIN CELL WORKIN'
I WANT A HALF DOZEN OF THESE LITTLE DODADS THAT YOU PUT THROUGH A BOLT AN' BEND THE ENDS BACK. YOU KNOW.
?
CARL WILLIAMS

Graphic Illustration of Why You Should Know Your Stock.

Good window displays are also essential. In fact, the window display is one of the most effective forms of publicity a merchant can use. A merchant need not be a professional window trimmer to have his windows look neat and attractive. If he will follow a few simple rules and use a certain amount of good judgment and good taste, his windows can be made valuable allies in attracting people to his store.

Good Roads Helping Retailers Practicing Better Selling Methods to Develop Their Businesses.

Increasingly Keen Competition Driving Small Town Merchant Into Rendering Better Service.

WHAT effect are the good roads and the increase in motoring facilities having upon the business of the retail establishments in small towns?

The answer to this question will depend largely upon the attitude of mind of the individual whose business is affected. If he is an up-and-coming merchant, his answer will be that his business is being increased by good roads. First, because the good roads naturally make it possible for better mail service and in the greater ease and dispatch with which he can get out into the country personally to see the farmers and learn their needs.

Secondly, the farmer is enabled to fill his needs much more quickly than he could before. For instance, we'll say he breaks a clevis to a plow or he runs out of binder twine quicker than he thought he would. It gives him little or no concern because he can jump in his flivver, whirl away down town, get what he wants and return to his work with little or no loss of time.

Now, on the other hand, if the retail merchant is of the unprogressive type, he will bemoan the fact that good roads and flivvers are taking his trade away from him.

His belief is that the good roads and the flivver make it possible for his former customers to go with ease to the large trading centers for their purchases.

He does not stop to realize that the only justification for his being in business at all is that he acts as a buyer for the community. For this he gets his compensation in the same manner as anyone else performing a necessary service. The amount of his compensation—profit—will be governed by the extent of his service. When he ceases to supply the people of the community with their needs he ceases to have a claim upon their patronage and for his compensation.

If a storekeeper stocks the articles that his patrons need, and properly acquaints them with the fact that he has them in stock, he need not worry about the loss of business he is going to experience.

The fact is that competition is constantly growing keener with the shortening of distances and the retail merchant needs must keep up with the march of progress if he would prosper.

There is no cause for this, in fact. The good roads will aid him just as much as they will assist his customers in getting to his store. And they will come to his store in preference to going 100 miles or so for their purchases if he shows them that he can give them as good values for their money as they can obtain at the larger centers.

You Pay a Share of the Loss Caused by Every Fire.

Where property only is involved in a fire, the direct loss to the property owner is usually minimized by the payment of insurance. The people have never thoroughly absorbed the idea that they are paying the fire losses, that every fire is a drain upon the resources of the community and that the insurance companies have no Treasure Island to which they may go and bring back gold or material resources. A carelessly caused fire is a crime against the community, regardless of whether insurance is carried.

Coming Conventions

Iowa Sheet Metal Contractors' Outing, July 12 and 13, 1924, at Waterloo, William Thomson, P. O. Box 513, Mason City, Iowa.

Michigan Sheet Metal and Roofing Contractors' Outing to Quebec, July 19 to 26, 1924. Frank E. Ederle, Secretary, 1121 Franklin Street, S. E., Grand Rapids, Michigan.

Ohio Sheet Metal Contractors' Association, Southern Hotel, Columbus, Ohio, July 22 to 24, 1924. George F. Mooney, Secretary, 213 First National Bank Building, Columbus, Ohio.

Sheet Metal Contractors' Association of Pennsylvania, Pittsburgh, Pennsylvania, July 23, 24 and 25, 1924. W. F. Angermyer, Secretary, 714 Homewood Avenue, Pittsburgh, Pennsylvania.

New York State Retail Hardware Association Convention and Exposition, Buffalo, February 10, 11, 12, 13, 1925. Headquarters, Hotel Statler. Exposition at the Broadway Auditorium. John B. Foley, Secretary, City Bank Building, Syracuse.

North Dakota Retail Hardware Association Convention (place not yet selected), February 11, 12, 13, 1925. C. N. Barnes, Secretary, Grand Forks.

Pennsylvania & Atlantic Seaboard Hardware Association Convention and Exhibition, February 16 to 20, 1925, at Philadelphia Commercial Museum. Sharon E. Jones, Secretary, 604 Wesley Building, Philadelphia.

Minnesota Retail Hardware Association Convention, St. Paul Auditorium, St. Paul, February 17, 18, 19, 20, 1925. C. H. Casey, Secretary, Nicollet Avenue and Twenty-fourth Street, Minneapolis.

Southeastern Retail Hardware Association Convention and Exhibition, Birmingham, Ala., May, 1925. Walter Harlan, Secretary-Treasurer, 701 Grand Theater Building, Atlanta, Georgia.

Retail Hardware Doings

Arkansas.

A one-story brick building will be constructed on Cleveland Avenue, between Elm and Main Streets, El Dorado, which will be occupied by the Sample-Hanna Hardware Company.

California.

Mr. William Rice has opened his new hardware store at Mountain View.

Idaho.

Herman W. Funke is the new manager of the Winona Hardware and Mercantile Company at Winona, to fill the vacancy caused by the resignation of F. G. Pickford.

Indiana.

Garfield Hiatt, who for several years has conducted a hardware store on the southeast corner of the public square, Winchester, has sold a half interest to Walter Payne of Winchester.

Kansas.

R. E. Larey has established a hardware store at 900 North 18th Street, Kansas City.

Mississippi.

James Weems has opened a hardware store at Shubuta.

Nebraska.

A deal has been completed whereby Mrs. Sarah E. Bly assumed the interest of her husband, the late Walter Bly, in the firm of Bly & Harper, at Scottsbluff, and together with L. G. Bly, Sr., and L. G. Bly, Jr., purchased the interest of W. E. Harper in the firm. Under the new arrangement the company will be known as the Bly Hardware Company, and L. G. Bly, Sr., will be in active charge of the store. L. G. Bly, Jr., will continue his radiator repair shop as formerly, but will devote a portion of his time in the hardware business.

Forty-two Oil Stoves Were Sold in 1923 in An Arkansas Town of Less Than 3,000.

Colored Mammies Were Prejudiced Against Them, But Harry Knew How to Overcome That.

WHEN Opie Read wrote the "Arkansaw Traveler," they did not regard oil stoves very favorably down in that land of cotton and "misery," but folks have changed their notions, not only as to the necessity of having malarial fever, but also as to variety of crops and as to modern cooking apparatus, and today Arkansas is about as progressive a state as any in the great Southwest, with furnaces, electric washing machines and oil stoves regarded as signs of being "among the better class."

And just as is the case everywhere else, so there stands out in Monticello, Arkansas, one hardware merchant who is know as "headquarters" for oil stoves.

The name of his business is the Harry Hankins Hardware Company, and the man who is bossing the stove department is "H. H., Jr."

They have handled one make of oil stoves for ten years, and that has, of course, much to do with their success.

Every spring the company gives the business a good send-off with a demonstration and sales have increased steadily each season. Last year, 1923, was the banner year. A total of forty-two stoves was sold in three days, including twenty-seven of one type and fifteen of another. Besides the actual sales, a prospect list of approximately 500 names was secured.

These prospects will be followed up and many of them closed within the near future. During the three-day demonstration eight stoves were kept going and one of the church ladies' societies was invited down to make and sell doughnuts and rolls during the demonstration. Enough ladies were present to keep the eight stoves busy and they sold 200 dozen rolls and 53 dozen doughnuts. The society received the income from the sales, but many times there were fifteen or sixteen of the ladies present in the store doing their share and each one of them got an opportunity of trying out the stoves.

A one-half page ad was used for the announcement of the demonstration and twenty-one testimonials were printed from local women who were enthusiastic about the stove. Arrangements were made to trade in old stoves at a nominal figure simply to take them off the prospect's hands.

Harry Hankins, Jr., says the only trouble they have had in ten years has been from families employing colored help. Monticello has about 2,500 population, about 30 per cent being colored. He told of one old colored mammy, who, upon hearing that her mistress was about to buy an oil stove at Hankins', said, "Lordy, Missy, don't you buy one o' dem stoves; they uses a gallon of oil a day." Mr. Hankins says, however, that as soon as the colored people are taught to handle oil stoves they become enthusiastic users of them; but it sometimes takes real work to break down the resistance set up by superstition; and he also says that he sold one of the stoves to this family despite the protest from the old colored mammy.

The prospect list was secured by offering as awards two cakes each day that had been baked in the stoves on demonstration. Each lady was required to register and to state whether she had an oil stove, and if so what kind. There are now 500 good prospects gained from this little idea of giving away two nice cakes each day for three days.

When all is said and done, a well-planned demonstration is certainly an excellent way of getting both business and prospects. And it might be added that the more unusual the demonstration the greater will be the profits resulting therefrom. It's the unusual method of doing things that attracts attention, and when attention has once been gained, results are sure to follow.

Stove Merchant Never Refuses to Take Old Stoves in Trade.

There are some stove merchants who do not believe in special sales. One man said when questioned on this point:

"A stove is not a thing that a woman will buy and take home for future use, like she will a waist, when she sees an attractive price. No woman will purchase a stove unless she is badly in need of it. The purchase of a stove in almost every household is quite an event.

"Judicious advertising has gone a long way to build up the extensive business we are doing. During the busy season in the fall, we use large display space three times a week in the city dailies.

"We handle a great many second hand stoves. Very often when we sell a new stove, we are asked to take an old one in part payment. We are always willing to do this if the old one is in such shape that we can fix it up to look anywhere decent. The second hand goods are shown in our large basement, away from the new lines; but we never take a person down stairs to look these over until we are convinced that we cannot sell him a new stove. We have a large workroom at the back of our store where these old stoves are taken apart, cleaned and repaired and polished, until they are fit to be shown.

"Every man who handles stoves should have repairs on hand for any part of every stove he handles. A customer who wants some part right away is not pleased when you tell him you will have to send away for it and maybe not get it for three or five days. We have a separate room at the back of the store, in which are stored all the various parts required for the lines we sell. We can give a customer any piece in five or ten minutes."

Get right, and then advertise.

Steel Industry Shows Improvement Over Last Week—June Mail Order Sales Show Increase Over Year Ago.

Non-Ferrous Metals Show Little Change—Copper Developed Better Tone—Tin Demand Falls Off.

IMPROVEMENT in the steel industry was indicated during the midweek. Producers in the Chicago distrist reported an increase of about 20 per cent in orders. A broadening steel making schedule also was indicated in the Youngstown district in plans for enlarging rolling mill operations. Of fifty-two independent open hearth furnaces, twenty-one are to melt in the first four days, compared with sixteen active last week.

"August is looked to by leaders in the trade to bring a definite turn in operations and in demand," the *Iron Age* says, "though uncertainty as to prices is cutting down current buying and is likely to be a large factor for some weeks. Bookings of structural steel exceeding 31,000 tons in the last week are the largest since the middle of April."

"Improvement in the breadth and volume of new business in steel is of minor character but the situation is more settled," the *Iron Trade* says. "Production at the beginning of the week showed no appreciable variation from a week ago."

The mail order business, regarded as one of the "trade barometers," also affords encouragement. Sears, Roebuck & Company, reported June sales totaling $13,938,752, an increase of 4.54 per cent over June last year.

Sales for the first half of this year totaled $104,917,781, a decline of only 1.74 per cent from the corresponding period last year.

June sales of Montgomery Ward & Company totaled $13,039,315, an increase of 12.29 per cent over June last year, while sales for the six months were $75,725,618, a gain of 17.52 per cent.

Copper.

A somewhat better tone was developed in the copper market the forepart of the week as a result of the slight advance in the foreign market, but there was little demand from consumers and prices were nominally unchanged.

Producers report some sales of Electrolytic made recently at 12.50 cents delivered for July, August and September shipment.

Business in the outside market was dull, but a slightly firmer tone prevailed in sympathy with the attitude of first hands.

Refinery positions were held about 5 points higher, but it would be necessary to shade prices 10 points or more to bring about business. There were few buyers of Electrolytic even at 12.40 cents refinery for prompt, July or August shipment.

Tin.

There was a decided falling off in the tin demand the fore part of the week.

Straits tin closed on Tuesday at 44 cents, an advance of ¼ cent.

The stocks of tin reported in New York on June 30th amounted to 4,067 tons, of which 3,507 tons were in warehouse and 560 tons on dock or landing.

The total of the stocks on June 30th was identical with that of May 30th, but warehouse stocks increased from 1,567 tons to 3,507 tons, whereas the stocks on dock and landing decreased from 2,500 tons to 560 tons.

The increase in the warehouse stocks is not a good feature for it shows that supplies are in excess of demands because dealers and importers do not go to the expense of placing tin in warehouse unless they have no other disposition for it.

Lead.

Lead was unchanged at 7 cents New York and 6.70 cents St. Louis. There were 125 tons of lead exported to England Tuesday, July 1st, and 300 tons shipped to Germany, through the port of New York. This brings June exports, through that port, up to 2,555 tons.

St. Louis lead receipts last week were 60,250 pigs, as against 51,730 the week before, while receipts since the beginning of the year totaled 1,419,300 pigs, as compared with 1,463,820 during the corresponding period last year.

Zinc.

Zinc advanced 5 points to 5.80 cents a pound, St. Louis, and 6.15 cents New York.

June exports of zinc, through the port of New York, totaled 835 tons.

St. Louis zinc receipts last week amounted to 23,760 slabs, as against 40,680 the week before, while receipts since the beginning of the year totaled 1,618,360 slabs, as compared with 1,716,940 during the corresponding period last year. St. Louis shipments last week were 47,880 slabs, as against 44,880 the week previous, while shipments since the beginning of the year aggregated 1,507,300 slabs, as compared with 1,378,440 during the corresponding period last year.

Solder.

Chicago warehouse prices on solder are as follows: Warranted, 50-50, $28.25; Commercial, 45-55, $27.50, and Plumbers', $26.50, all per 100 pounds.

Wire and Nails.

Conditions are much the same from week to week in the wire products market, although leading makers are firmer in their stand not to quote less than 2.65 cents to 2.90 cents, base Pittsburgh, on wire and wire nails.

Reports of concessions are meagerly supported. Mixed car-

loads appear to be made up of a greater variety of wire products than is usual at this season.

Bolts and Nuts.

The third quarter opens in the nut and bolt market with a few contracts being taken for that period on the basis of 60 and 20 off on large machine bolts. Much second quarter tonnage however, has lapsed and against these contracts specifications continue to be received in small tonnages as needed by jobbers and large users. Spot buying is extremely limited, an occasional carload being purchased. Operations are not increasing and remain at about a 35 or 40 cent. The usual price on structural rivets is 2.60 cents base Pittsburgh, although some large tonnages carry a preferential figure slightly lower, and some orders unattractive as to size bring 2.65 cents. Single carloads are bought from time to time.

Tin Plate.

With August tin plate specifications well in hand and September's due by July 15, no sudden change for the better is expecteld in the tin plate market for July.

Operations for the month may not increase much over 50 per cent, as compared with the recently sustained average of approximately 65 per cent of capacity. Some tin plate mills in the American Sheet & Tin Plate Co.'s group, as well as some of the independents, will go down further during the July vacation period. Buying for the third quarter was just about half of what it should have been, but the heavy buying done earlier in the year apparently goes far toward satisfying some of the present demand for finished cans.

The leading interest reports a fair movement in the export market at prices about $5 per ton higher than the English bid. One late order going to the leading interest for oil can sizes for Japan calls for 40,000 base boxes.

The domestic price still is firm at $5.50 per base box of 100 pounds, Pittsburgh. The usual price on stock plate is $5.15 per base box.

Sheets.

A small measure of improvement is noted in the sheet market. Buyers are feeling more encouraged.

The leading interest reports an increase of only a fraction above 1 per cent last week over the preceding week's average operations, and improvement among independent sheet producers is spotty.

The last two weeks of June were better than the first two. July, however, usually is a quiet month in hot mill operations, but the feeling is that the general average will not be greatly lowered from the present figure of 40 to 45 per cent.

One such offer is noted on black sheets where 3.45 cents was quoted, another on galvanized where lower than 4.60 cents was named. The usual concession on black is to 3.60 cents, and on galvanized to 4.70 cents. The 5.10 cents, Pittsburgh, price on full-finished automobile sheets still is the representative market figure.

Old Metals.

Wholesale quotations in the Chicago district, which should be considered as nominal, are as follows: Old steel axles, $16.75 to $17.25; old iron axles, $23.50 to $24.00; steel springs, $18.00 to $18.50; No. 1 wrought iron, $11.50 to $12.00; No. 1 cast, $16.00 to $16.50, all per net tons. Prices for non-ferrous metals are quoted as follows, per pound: Light copper, 8 cents; light brass, 5 cents; lead, 5 cents; zinc, 3¼ cents, and cast aluminum, 14½ cents.

Pig Iron Market Active Through Past Week, Though Purchase Tonnages Were Less.

Speculative Spirit Absent — Foundry Industry Operating at Average of Less Than 50 Per Cent.

"THE pig iron market was quite active the past week, even though purchases did not total as much tonnage as in the preceding week," says the Rogers, Brown and Company report.

"The speculative spirit was absent. This was pleasing to blast furnace interests, they being more concerned about supplying the requirements of the trade without overbuying, in view of the exceedingly low prices prevailing.

"Some foundries are still operating on tonnages bought for first quarters delivery and small lots bought from time to time during the second quarter, so it is reasonable to expect that a considerable tonnage will yet be purchased for third quarter or last half shipment before the present buying movement subsides.

"Heavy buying was done by the radiator and sanitary lines, whose operations have been at a better rate than many others. In some districts general jobbing foundries experienced a slight improvement, but as a whole, the foundry industry is operating at an average of less than 50 per cent.

"Steel companies, with the exception of the U. S. Steel Corporation, are operating at about 50 per cent of capacity. It is not expected much improvement will occur until after the middle of July, as a number of steel plants and foundries are now planning for their customary shut-down during the first ten or fifteen days of July.

"There was no change in the price of pig iron, ferro-alloys or coke. As was the case last week, buying of coke was confined principally to small lots for early shipment. One large producer of Connellsville coke put out an additional 1,000 ovens."

Iron Production in June dropped 20 per cent and this followed a slump of nearly 22 per cent in May. June output was nearly 40 per cent below the high point of the year, reached in March. In fact, last month's output of only 2,026,221 tons marked the smallest daily rate since August, 1922.